MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2017 / 2018

PBC0016 – BASIC COMPUTING AND PROGRAMMING

(Foundation in Engineering)

12 MARCH 2018
9.00 a.m. – 11.00 a.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of **FOUR (4)** printed pages with **FOUR (4)** questions.
2. Answer **ALL** questions. The distribution of the marks for each question is given.
3. Please write all your answers in the Answer Booklet provided.

QUESTION 1 (25 marks)

(a) In every instruction, a processor repeats basic operations comprise of machine cycle. Describe each steps listed in the machine cycle. [4 marks]

(b) Computer and mobile devices contain two types of memory which are volatile and non-volatile.

(i) Define the term of volatile memory and non-volatile memory. [3 marks]
(ii) Random Access Memory (RAM) is categorized as volatile memory. Describe two different types of RAM. [4 marks]

(c) Input has data and instructions which are entered into the memory of a computer while output has data which is processed into useful form.

(i) List TWO (2) types of input and TWO (2) types of output devices and describe the function of each chosen devices. [8 marks]
(ii) Touch screen technology consists of resistive, surface acoustic wave and capacitive types. Choose one type and explain how this technology operates the touch screen as input. [4 marks]

(d) Discuss TWO (2) advantages of flat panel display compared to cathode ray tube (CRT) application. [2 marks]

QUESTION 2 (25 marks)

(a) Describe how Radio-Frequency identification (RFID) operates. Differentiate between active and passive RFID type tags. [6 marks]

(b) Describe TWO (2) advantages of computer technology in the automotive industry. [4 marks]

(c) Define operating system terms and list THREE (3) functions of operating system. [5 marks]

(d) Booting is defined as process of starting or restarting a computer with cold boot and warm boot type. Explain the difference between these two types. [4 marks]

(e) An application software is a computer program designed to perform a group of coordinated functions, tasks or activities for user's benefit. Suggest one software for each the following description:

(i) Software program that restricts access to certain material on the Web. [2 marks]
(ii) Application software for communication. [2 marks]
(iii) Software for graphics and multimedia. [2 marks]

Continued...

QUESTION 3 (25 marks)

(a) A network is a collection of computers and devices connected together via communication devices and transmission media. Describe the difference between Local Area Network (LAN), Metropolitan Area Network (MAN) and Wide Area Network (WAN). [6 marks]

(b) Network topology refers to the layout of the computer and devices in a communication network which divided into **star**, **bus** and **ring** network. Define type of network in each case below accordingly:

(i) Cable forms closed ring loop with the data travels from device to device in one direction. [2 marks]

(ii) Computers and devices connect to central cable, inexpensive and easy to install. [2 marks]

(iii) Devices connect to a central computer, called hub and all data are transferred from one computer to another through hub. [2 marks]

(c) As an Engineer, you are required to plan for network communication channel through physical transmission media. Suggest one type of physical transmission media and briefly explain two advantages of the transmitter medium chosen. [6 marks]

(d) Define the term of graphics, types of graphics and explain how graphics can be used in multimedia projects. [7 marks]

QUESTION 4 (25 marks)

(a) Draw a flowchart for an algorithm that prompts the user for marks and displays the corresponding letter grade. The grading structure is given as follows:

Marks	Grade
85-100	A
70-84	B
60-69	C
<60	F

[6 marks]

(b) Determine whether the listed variable is valid or invalid. Describe the reason for each case if invalid.

(i) new programming [1.5 marks]

(ii) some_number [1.5 marks]

(iii) 2bar [1.5 marks]

(iv) workername [1.5 marks]

Continued...

(c) Determine the output of the following program:

```
#include <stdio.h>
int main(){
        int i;
        for (i = 20; i >=1; i/=2)
        printf("%d ", i);

return 0;
}
```

[5 marks]

(d) Write a complete C program code that prompts the user to enter input values of length and breadth. The program will then calculate the area of a rectangle based on the user's input (area=length*breadth). The expected output is the area of the square which is also **float** type data as shown in Figure 4(d).

```
Enter the two sides of a square:10
5
The area of the square =50.000000 square meters
```

Figure 4(d)

[8 marks]

End of Paper